

ADVANCED COMMUNICATIONS TECHNOLOGY

First Coast Guard District NDS Voice Traffic Desired Capabilities Report

Prepared for:

**United States Coast Guard
Research and Development Center
Advanced Communications Technology Project**

Prepared By:

**Anteon Corp.
Fairfax, VA
Delivery Order DTCG-39-97-F-E00178**



September 1997

Table of Contents

Paragraph	Title	Page
1	Introduction.....	1
1.1	Purpose.....	1
1.2	Background.....	1
1.3	Scope.....	1
2	Task Overview and Methodology.....	1
3	Information Collection.....	2
3.1	On-Site Interviews	2
3.1.1	First Coast Guard District Units.....	2
3.1.2	Non-First Coast Guard District Units	7
3.2	Interviews From Previous Tasks (On-Site and Telephone).....	8
3.3	Consideration of PORD Requirements.....	9
3.4	Other Sources.....	9
4	Summary	9
Appendix	A-1

List Of Tables

Tables	Title	Page
Table 1	Comments About Cellular Telephones.....	11
Table 2	Comments About Data Communications	12
Table 3	NDS Desired Capabilities.....	13

First Coast Guard District NDS Voice Traffic Desired Capabilities Report

1 Introduction

1.1 Purpose

The purpose of this report is to present the desired voice and data capabilities for the projected National Distress System (NDS) communications in the First Coast Guard District (CGD1).

1.2 Background

The NDS, is a network of approximately 300 remotely-controlled very high frequency-(VHF) frequency modulated (FM) radios and antennas used for monitoring the Maritime Distress Frequency (CH 16-156.8 megahertz (MHz)). The NDS provides distress, safety, and United States Coast Guard (USCG) command & control (C²) communications coverage. The USCG is researching alternative communications systems for potential use in the modernization of the NDS. In addition to the current voice capability, the modernized NDS may offer data communications capabilities.

To determine voice and data communications features that may be advantageous to the users of NDS, Anteon Corporation (Anteon) was tasked to survey NDS users in CGD1 and Coast Guard Group/Air Station Corpus Christi to identify desired voice and data capabilities.

1.3 Scope

This document provides an overview of the methodology used to collect and analyze data relevant to the desired capabilities of a modernized NDS and summarizes those capabilities.

2 Task Overview and Methodology

Coast Guard personnel, who use NDS daily in the performance of their profession, are among the most knowledgeable NDS users. They understand the system's short-comings and the capabilities needed to strengthen the system so it may grow with the needs of the service and the public. To use this cache of knowledge, Anteon analysts and engineers visited more than twenty units in CGD1 and four units of Coast Guard Group/Air Station Corpus Christi in the Eighth Coast Guard District. Using an interview guidance document (appendix), tailored to each unit, Anteon analysts facilitated discussion groups comprised of a cross-representation of Coast Guard NDS users. The facilitators *guided* the discussions to focus on five areas: desired capabilities, current NDS usage and capacity, projected NDS usage and capacity, cellular telephone usage, and unit profiles.

Other information about capabilities was gathered by reviewing the on-site and telephone survey forms completed during the interviews conducted during the performance of delivery order DTTCG39-96-F-E00377,

National Distress System Modernization Project Requirements Analysis. These responses are divided into two categories, those originated by personnel in CGD1, and those originated by personnel not in CGD1. The Preliminary Operations Requirements Document (PORD) was also reviewed for relevant information. A review of government furnished correspondence provided additional insight to desired voice and data capabilities.

The data was tabulated to show similarity and popularity of the identified desired voice and data capabilities. An assessment of each of the desired capabilities was made based on the need expressed during interviews, the universal desire for the capability, and the feasibility of providing the capability. Each capability was assessed individually and examined as part of a system. The value of the capability is based on its stand-alone features and its potential contribution to the integrated system.

3 Information Collection

3.1 On-Site Interviews

The form that provided the guidance for the group discussions is included in this document as an appendix. Four areas of the discussion guide used during the on-site interviews are of primary importance to this report; they are: cellular phone usage, current NDS, future NDS voice, and future NDS data. Provided below is a summary of the discussions with personnel of CGD1 units and Group/Air Station Corpus Christi.

3.1.1 First Coast Guard District Units

At CGD1 units, discussions were conducted with operational, communications, engineering, and maintenance personnel from groups, stations, and cutters. Highlights from the discussions are synopsized here.

3.1.1.1 Commander, First Coast Guard District, Boston, MA

An Anteon analyst met with three personnel at CGD1 office in Boston. These Coast Guard personnel have expertise and current leadership experience in the operations center, search and rescue, and communications. Discussions about cellular telephone usage revealed that it does provide more privacy than NDS, however, there is a concern that tasking by voice is not desired and should normally be done by hard copy. Regarding the current NDS capabilities, two major issues were identified, the inability to provide a location of the transmitting station and poor inland coverage (such as the coverage of the Merrimack River.)

3.1.1.2 USCGC BITTERSWEET

A discussion about NDS was held between two *USCGC Bittersweet* personnel and Anteon analysts. During the discussion it was stated that *USCGC Bittersweet* uses cellular telephone in place of VHF-FM sometimes when operating in areas where NDS does not provide coverage. The potential for data communications was discussed; however, the cutter's participants did not feel that data communications would benefit their operations. Better NDS coverage was the only desired capability mentioned during the discussions.

3.1.1.3 USCGC JUNIPER

Personnel assigned to the *USCGC Juniper* were engaged in discussion by two Anteon analysts. During the discussions cellular telephone usage was addressed. *USCGC Juniper* personnel stated that they use cellular telephones to supplement radio communications because they are reliable and popular with many people. As the

discussion progressed to the NDS, it was revealed that *USCGC Juniper* personnel believed the system coverage was “mostly good.”

3.1.1.4 Coast Guard Group Boston

The discussion group at Coast Guard Group Boston consisted of four Coast Guard personnel and an Anteon analyst. The Coast Guard personnel were experienced and currently working in operations and telecommunications. During discussions about cellular telephones it was stated that the Aids to Navigation Team (ANT) usually takes cellular telephones with them when they conduct patrols since the traffic on the working channel is very busy. They conduct patrols approximately twice a week. The desired capabilities for NDS discussion was focused on the communication/operations areas. Separation of speakers to enable the operators to identify which speaker the audio is originating at was identified as a desired capability. A visual indication of speaker activity would also contribute to better identification of which speaker is active. The ability to easily locate and play back recorded communications is also a capability that is needed. In addition, direction finding capability from the high sites is desired.

3.1.1.4.1 *USCGC WHITE HEATH*

Anteon analysts met with three Coast Guard personnel. The Coast Guard personnel were experienced and currently working in operations. During discussions it was noted that cellular telephone is used for routine ship’s business and very little operations related traffic. Typical traffic conveyed over cellular telephone are mooring messages, aids to navigation discrepancy messages, and MOVREPs (Movement Reports). Also logistics and procurement traffic and food service orders are completed by cellular telephone. Potential NDS data transmissions that were discussed are the capability to download information and the ability for Aids To Navigation Information System (ATONIS) in Windows.

3.1.1.4.2 *ISC/ESU Boston*

Four electronic maintenance personnel from ESU Boston participated in discussions with an Anteon analyst. A need was identified for a shop spare mockup of equipment for training of maintenance personnel. Standardization of equipment to minimize the number of different types of equipment is needed. Better maintenance training will decrease restoration times. Direction finding capability at high sites is a desired capability. A more reliable link between the control consoles and the high sites is required to reduce down time. The weakest links in the system are the telephone lines between the control room and the high site. Even though the radio equipment is antiquated, the primary source of reliability problems are land lines.

3.1.1.4.3 *Station Point Allerton*

At Station Point Allerton, six Coast Guard SAR experienced personnel participated in discussions with one Anteon analyst. The Coast Guard personnel related that cellular telephones were used for administrative and logistic communications. If *CG is dialed, the call goes to the group. About 20 percent of SAR cases require the use cellular telephone. It is used to supplement VHF-FM communications. The NDS is perceived as providing inadequate secure communications and as having coverage gaps. In the future NDS system it is desired to have better equipment providing better coverage and secure communications.

3.1.1.4.4 *Station Gloucester*

An Anteon analyst facilitated a discussion with six Coast Guard coxswains, boat crew, boat engineers, and watchstanders at Station Gloucester. It was noted that cellular telephones were used for about 25 percent of communications and VHF-FM for about 75 percent. Cellular telephone was commonly used for longer conversations. Desired capabilities included a need for better intercommunications between the station and group, secure communications coverage of the AOR, and a simplified control system for the high sites.

3.1.1.5 Coast Guard Group Woods Hole

Group Woods Hole provided six experienced Coast Guard personnel, including the telecommunications specialist in-charge, currently working in operations. Group Woods Hole currently uses cellular telephones but not for operations. The ANT communicates with the group via cellular telephones. The problems with cellular telephones are:

- batteries are short lived,
- boaters do not have the Coast Guard group telephone number so they call 911, and
- cellular phone conversations are only heard by the unit called and not by other boaters in the area who could help.

A positive aspect of cellular telephone usage is that it reduces radio traffic.

Regarding NDS, a need for secure communications from the high sites was identified. Caller identification was also noted as a capability that is desired to minimize hoaxes.

3.1.1.5.1 Station Cape Cod Canal

At Station Cape Cod Canal, twelve Coast Guard personnel, including the officer-in-charge, participated in discussions with two Anteon analysts. The Coast Guard personnel are experienced and currently working in operations. Station Cape Cod Canal currently uses cellular telephones because the boats are always in the cell area. Station Cape Cod Canal uses the cellular telephones to supplement VHF-FM. The duration of the calls is less than 3 minutes, and no information is lost over the cellular telephones. A problem with cellular telephones is that users turn their instruments off to conserve batteries. When the instrument is off, the Coast Guard can not complete a call to that telephone.

As the discussion moved on to the NDS, it was revealed that a system similar to the Operations Information System (OIS) may be more than what is needed. One participant indicated that “If you add too much, it can get in the way of doing other things.” Training for a new system is a concern because it may be difficult to release personnel for training and continue to operate the station. It was a general opinion that more operators should be involved in the design of a new system.

3.1.1.5.2 Station Chatham

At Station Chatham, 13 Coast Guard personnel, including the officer-in-charge, experienced and currently working in operations participated in discussions with two Anteon analysts. During the discussions about cellular telephones it was stated that cellular telephones are used to communicate when operating in areas where there are NDS gaps in coverage. It was indicated that many persons requesting Coast Guard assistance do so via cellular telephone. A disadvantage to this is that the Coast Guard can not use direction-finding equipment to

help identify the location of the caller. Other problems associated with cellular telephones are: callers do not know their phone number, limited battery life, and they can not call more than one number at the same time.

As the discussions progressed to the NDS, it was noted that secure communications need to be improved. The identification of the caller was cited as an important capability. Automatic MAYDAY with position attached was mentioned as a desired capability. Complete coverage of the AOR is needed. Currently, Bass River is a gap in the coverage. Other desired capabilities include direction finding from the high sites, separate channels for hailing and distress, and standardized equipment to minimize the different types of radios. Data communications for the transmission of pictures and search plans would be usable if it were weather proof and not too large.

3.1.1.5.3 Station Castle Hill

Two Anteon analysts participated in discussions with two Coast Guard personnel at Station Castle Hill. The Coast Guard personnel are experienced and currently working in operations. Personnel at Station Castle Hill believe that cellular telephones should be standard equipment. For NDS, station personnel desire caller identification to help minimize hoaxes.

3.1.1.5.4 USCGC MONOMOY

On board the *USCGC Monomoy*, two Anteon analysts conducted discussions with the commanding officer. It was stated that cellular telephones were used often and the cutter has experienced coverage to approximately 30 miles offshore. The cellular telephones provide an input to the facsimile machine. The cellular telephone is generally not used for operations.

The potential for data communications was discussed. It was believed that the ability to send information via data communications, such as checklists which may be three or four pages long, would be beneficial. Electronic charts and search patterns would also be advantageous.

While discussing NDS, it was noted that increased range was needed for secure communications.

3.1.1.6 Coast Guard Group Long Island Sound—Station New London

Group Long Island Sound was not on the itinerary; however, Station New London was visited and two Coast Guard personnel were engaged in discussions with two Anteon analysts. System interoperability with other government agencies is a concern and a desired capability at Station New London. The identification of callers, particularly if it is combined with the caller's location is also desired. An additional VHF-FM radio is needed on the 41 foot utility boat.

3.1.1.7 Coast Guard Group Moriches

At Group Moriches, four Coast Guard personnel met with two Anteon analysts. The Coast Guard personnel were experienced and currently working in operations or communications. It was noted that speaker separation would enhance the ability of watchstanders to identify which speaker is active during an incoming communication.

3.1.1.7.1 Station Fire Island

At Station Fire Island one Coast Guard auxiliary and nine Coast Guard personnel, including the commanding officer, met with two Anteon analysts. All personnel are experienced and currently working in operations or communications. Discussion participants indicated that communications over the cellular is perceived as more private than broadcasting on VHF-FM. Although cellular telephones are not routinely carried on floating resources, they are occasionally used to supplement the radio.

Regarding NDS, it was stated that every boat should have two VHF-FM radios. One radio to use for communications with the boater in distress and the other radio for communications with the Coast Guard Station. Better interagency communications are needed. The speakers in the control room need to be separated because it is difficult to identify which speaker is active at any one time. Secure communications needs to be improved to provide coverage over the AOR. An intercommunications system among stations needs to be implemented.

3.1.1.7.2 Station Shinnecock

Two Coast Guard and one Coast Guard Auxiliary personnel met with two Anteon analysts at Station Shinnecock. All personnel are experienced and currently working in operations or communications. During a conversation about cellular telephones it was noted that boater usage of the cellular telephones is increasing. Cellular telephones provide more privacy but the location of the caller can not be readily determined.

It was suggested that a separation of the NDS distress and calling frequencies would be advantageous. Direction finding capability for the high sites is also needed.

3.1.1.8 Coast Guard Activities New York

At Coast Guard Activities New York five operations center and communications center Coast Guard personnel met with two Anteon analysts. Cellular telephones are used in areas where there are communication problems. Operational and administrative communications is passed by cellular telephones.

The personnel shared their concerns regarding data communications. One concern is that the increase of data communications will require an increase of typing. Another belief is that there is not a need for data communications.

It was noted that the speakers in the communications room require more separation to enable the watchstander to identify which speaker is active. Desired capabilities included automatic muting, direction finding and secure communications at the high sites. Also a better recording system is needed. One which is capable of short term recording and long term archiving.

3.1.1.8.1 Station New York

Station New York mustered five Coast Guard personnel to meet with two Anteon analysts. All the Coast Guard personnel are experienced and currently working in operations or communications. At Station New York, cellular telephones are always carried. On occasion they are used in place of radios. Cellular telephones are

used for operational, law enforcement, and when sensitive information is transmitted. The station personnel estimate that cellular telephones are used for approximately 40 percent of communications.

Regarding potential data communications, a concern was raised that any new capabilities do not add to the operator's need for attention. However, Coast Guard personnel mentioned that sometimes during boardings they do not give information about names or numbers because of the time it takes to transmit that information by voice. Whatever is provided for data communications must be small and easy to use.

While discussing future NDS desired capabilities, it was stated that the clarity of reception must improve for both secure and clear communications. Two radios are needed in each boat to enable concurrent communications. Coverage is an issue because it is sometimes difficult to communicate from certain areas.

3.1.1.8.2 Station Sandy Hook

At Station Sandy Hook eleven Coast Guard personnel met with two Anteon analysts. All Coast Guard personnel are coxswains, boat engineers, boat crew, or station communications watchstanders. At Station Sandy Hook cellular telephones are used on boats for law enforcement to minimize the possibility of fishermen listening to Coast Guard law enforcement communications. Cellular telephones are also used as a supplement during search and rescue operations. Approximately 10 percent of communications are conducted on cellular telephones.

Regarding NDS, it was stated that the current range of secure communications is inadequate; equipment with better secure communications range is needed. The clarity of transmissions in the control room is poor; therefore, improved clarity of received signals is needed.

3.1.1.9 Coast Guard Air Station Cape Cod

Two Coast Guard personnel at Air Station Cape Cod met with two Anteon analysts. The Coast Guard personnel were experienced in operations, communications, or maintenance. It was noted that cellular telephones cannot be used on the aircraft. As the conversation moved to potential data communications, it was stated that pictures and charts may be an asset to operations.

3.1.2 Non-First Coast Guard District Units

Discussions with non-CGD1 units included operational or communications personnel from Group/Air Station Corpus Christi, ESD Corpus Christi, Station Port Aransas, and Station Port O'Connor. Highlights from the discussions are synopsized here.

3.1.2.1 Coast Guard Group/Air Station Corpus Christi

At the Group/Air Station Corpus Christi four Coast Guard personnel, including the operations officer, met with two Anteon analysts. The Coast Guard personnel are experienced and currently working in operations or communications. Cellular telephone use is prohibited inside operational aircraft. The only issue mentioned about the potential for data communications was the expressed admiration for civilian law enforcement's ability to readily access the National Crime Information Center (NCIC) and Texas Crime Information Center (TCIC) data bases. Concern was stated about the incompatibility of secure communications between the Coast Guard and other agencies.

3.1.2.1.1 ESD Corpus Christi

The officer-in-charge of ESD Corpus Christi met with two Anteon analysts. The Coast Guard person is experienced and currently working in maintenance. Cellular telephones are used by ESD technicians to provide communications for maintenance purposes. It was noted that secure communications have poor range and need to be improved. Poor high site reliability was attributed to the frequent failure of land lines between the control center and the high site. This media needs improved reliability to ensure adequate performance of a modernized NDS system.

3.1.2.1.2 Station Port Aransas

At Station Port Aransas three Coast Guard personnel met with two Anteon analysts. The Coast Guard personnel are experienced and currently working in operations. During the discussions it was noted that the identification of callers is considered a desired capability. Two radios in the boat will provide improved capability. Improved secure communications, both in range and compatibility with other agencies, is also needed.

3.1.2.1.3 Station Port O'Connor

One Coast Guard person from Station Port O'Connor met with two Anteon analysts. The person is experienced and currently working in operations. Discussions revealed that cellular telephones are used as a supplement to the radios. They are used for operational communications. This can be attributed to the fact that many boaters have cellular telephones but not a radio. Desired capabilities for a modernized NDS include caller identification and position, and enhanced direction finding.

3.2 Interviews From Previous Tasks (On-Site and Telephone)

During the performance of delivery order DTCG39-96-F-E00377, National Distress System Modernization Project Requirements Analysis, Anteon conducted on-site and telephone interviews to validate the requirements in the PORD. Many of the interviews provided comments about capabilities. For this effort, Anteon reviewed these interview forms to capture those comments and categorize them by desired capabilities and if they were made by CGD1 personnel or personnel from outside the district.

Below is a tabulation of the seven significant desired capabilities. The left most column is a brief description of the comment, the second column is the number of interviewees from CGD1 that made the comment, the third column is the number of interviewees not from CGD1 that made the comment, and the last column is the total number of interviewees that made the comment.

Capability	CGD1	Other	Total
Identification of caller	2	14	16
Improved coverage	4	53	57
Inter-agency operability	4	22	26
Secure communications capability	1	12	13
Direction finding capability	14	30	44
Data communications capability	2	11	13

3.3 Consideration of PORD Requirements

The Draft PORD, Version 1.3 dtd 8/25/97, was reviewed to identify requirements that coincided with the desired capabilities identified during the research for this task. Seven of the 16 desired capabilities described in the table, NDS Desired Capabilities are clearly in the PORD. The remaining nine desired capabilities are inferred through broader requirements in the PORD. The separation of speakers and a visual indication of speaker activity is inferred in the requirement to “provide adequate human factor considerations.” The desire for a shop spare mockup for maintenance training and the standardize equipment to minimize the number of different types of equipment is inferred in the requirement for “the system to be ... maintainable, and logistically supportable within the planned ... personnel rate structure, and expertise level.” The desire for more reliable link between control consoles and the high sites is inferred in the requirement for reliability. The desire for intercommunications between stations and with the group is generally inferred in the PORD as providing “timely communications between Coast Guard forces and its customers and partners in all required areas” as are the desired capabilities for hailing and distress to be on separate channels, the need for two radios on boats, and the clarity of reception. However, these desired capabilities are not specifically addressed in the PORD.

3.4 Other Sources

In 1996 Coast Guard Group Boston initiated an investigation to determine the adequacy of the NDS to provide distress and command and control communications within the Group’s AOR. Four issues were identified:

- Provide automatic direction finding (ADF) capability to the Group Communications Center that will allow a fix on even short transmissions.¹
- Provide complete coverage of the required area. There are documented gaps in coverage of the required areas.²
- Establish a reliable system. Currently there are frequent system failures.³ The most common failures are attributable to leased phone lines. The problems may be disruptions or degraded signals, or excessive noise or tones on the lines.
- Provide the capability for secure communications and operational security. These are critical to mission success, particularly for law enforcement missions.⁴

4 Summary

The tables that follow provide a summary of the comments about cellular telephones, data communications, and desired capabilities. They show the popularity of each comment by indicating the units that mentioned them. In

the desired capabilities listing, in addition to the units, the table also shows which of the desired capabilities are included in the PORD those that appeared in interviews from previous tasks or other sources.

During discussions with some units it was noted that the estimate for cellular telephone usage was as much as 25 or 30 percent. These estimates were “off-the-cuff” and based only on personnel experience, but it shows a significant portion of wireless communications are accomplished by cellular telephone.

As Anteon analysts guided the discussions to data communications, a reoccurring theme emerged: “Added data communications must not create an undo work load on boat crews.” It is perceived that data communications will require keyboard entry, paper output, and other functions that will place additional requirements on boat crews that are already very busy during underway operations. Little value added information is visualized by the boat crews.

A capability that is emphasized by the boat crews is the desire for a second radio. During SAR missions, the boat crew requires continuous communications with both the distressed vessel and the Coast Guard station. If only one radio is installed they can only communicate on one frequency at a time. Many times they require access to public liaison and command and control channels nearly simultaneously. Constant channel switching is an unsatisfactory solution.

The reliability of the high site system is a concern to maintenance personnel and NDS users. It was noted at three units that the land line transmission path between the control consoles and the high sites is creating a reliability problem. The lines are susceptible to changing weather conditions and physical damage.

Table 1. Comments About Cellular Telephones

	Provides more privacy than NDS	Caller can not be located by direction finding systems	Are reliable	Batteries are short lived	Telephone numbers are not universally known	Cellular telephone conversations are not heard by other boaters	Boaters turn off cellular telephones to conserve batteries and then they can not be called	Callers do not know their cellular telephone number	Can only talk to one phone number at a time	Can be used to send and receive facsimile
First Coast Guard District	●									
USCGC BITTERSWEET	●		●			●				
USCGC JUNIPER	●		●							
Group Boston			●							
USCGC WHITE HEATH										
ISC/ESU										
Station Point Allerton	●	●		●		●	●			
Station Gloucester	●			●	●	●				
Group Woods Hole	●	●	●	●	●	●				
Station Cape Cod Canal	●	●	●	●		●	●			
Station Chatham	●	●	●	●		●	●	●	●	
Station Castle Hill	●	●	●	●		●	●			
USCGC MONOMOY	●		●							
Group Long Island Sound										
Station New London	●	●	●	●		●	●			
Group Moriches										
Station Fire Island	●									
Station Shinnecock	●	●								
Activities New York										
Station New York	●	●		●		●				
Station Sandy Hook	●	●				●				
Air Station Cape Cod	●		●	●		●				
Group/Air Sta Corpus Christi	●	●	●							
ESD Corpus Christi										
Station Port Aransas	●	●	●	●		●	●			
Station Port O'Connor	●	●	●	●		●	●			

Table 2. Comments About Data Communications

	Down load information	Ability for ATONIS in Windows.	Added data communications must not create an undo work load on boat crews	Ability to send pictures, search plans, charts, and checklists	Ability to access NCIC and TCIC
First Coast Guard District	●				
USCGC BITTERSWEET	●	●			
USCGC JUNIPER		●			
Group Boston	●				
USCGC WHITE HEATH	●	●			
ISC/ESU					
Station Point Allerton			●		
Station Gloucester			●		
Group Woods Hole					
Station Cape Cod Canal			●		
Station Chatham			●	●	
Station Castle Hill					
USCGC MONOMOY	●			●	
Group Long Island Sound					
Station New London			●		
Group Moriches					
Station Fire Island			●		
Station Shinnecock			●		
Activities New York	●		●		
Station New York			●	●	
Station Sandy Hook			●		
Air Station Cape Cod				●	
Group/Air Sta Corpus Christi					●
ESD Corpus Christi					
Station Port Aransas			●		
Station Port O'Connor			●		

Table 3. NDS Desired Capabilities

	Complete coverage of AOR	Separation of speakers	Visual indication of speaker activity	Recording, play back and archiving of communications	Shop spare mockup for maintenance training	Standardize equipment to minimize the number of different types	More reliable link between control consoles and the high sites	Secure communications capability, better range	Intercommunications between stations and with the group	Caller identification or location	Automatic MAYDAY with position attached.	Direction finding from high sites	Hailing and distress should be on separate channels	Need improved interoperability with other agencies	Need two NDS radios on boats	Clarity of reception
First Coast Guard District	●											●				
USCGC BITTERSWEET	●												●	●		
USCGC JUNIPER	●							●					●	●		
Group Boston		●	●	●								●				
USCGC WHITE HEATH																
ISC/ESU					●	●	●			●		●				
Station Point Allerton	●							●		●		●			●	
Station Gloucester							●	●	●			●			●	
Group Woods Hole	●			●			●	●		●	●	●	●	●	●	
Station Cape Cod Canal	●						●				●	●	●	●	●	
Station Chatham	●					●	●	●		●	●	●	●	●	●	
Station Castle Hill	●						●	●		●	●	●	●	●	●	
USCGC MONOMOY	●							●					●	●		
Group Long Island Sound																
Station New London	●						●	●		●	●	●	●	●	●	
Group Moriches		●		●						●		●				
Station Fire Island		●						●	●	●		●		●	●	
Station Shinnecock									●			●	●		●	
Activities New York		●		●			●	●				●			●	
Station New York	●									●		●			●	●
Station Sandy Hook								●		●		●			●	●
Air Station Cape Cod															●	
Group/Air Sta Corpus Christi	●			●				●						●		
ESD Corpus Christi							●	●								
Station Port Aransas	●						●	●		●	●	●	●	●	●	
Station Port O'Connor	●						●	●		●	●	●	●	●	●	
Previous interviews in CGD1	4							1		2		14		4		
Previous interviews not in CGD1	53							12	1	14		30		22		1
Other sources	●						●	●				●				
PORD	●	*	●	●	*	*	*	●	*	●	*	●		●	*	*

NOTE: * Inferred within more general PORD requirements.

Appendix A–On-Site Survey Form

***NDS Traffic System Model
Information Collection Guidelines for Unit Visits
Groups and Stations***

Demographic Information

<i>Date/Time:</i>		<i>Location:</i>	District Office ISC Group Activity WMECs WLBs MSOs WYTLs ANTs Stations WPBs WLMs WTGBs Air Station
<i>Group Participants:</i>	<i>Name:</i>	<i>Position:</i>	<i>Grade/Rank:</i>

2. List and describe your resources.

<i>Unit</i>	<i>Resources</i>
<i>Shore Units</i>	
Groups and Stations	
District Office/ISC	
<i>Mobile Units</i>	
Cutters	
Small Boats	
Aircraft	
Other Mobile Units	

3. Describe the mission profile for each of the listed resources.

a. Specify the number and type of resources typically underway or in the air at any one time. _____

Why? _____

b. Describe the missions those resources are committed to _____

c. For *Mobile Units*, specify the operating range and mission path. _____

C. NDS Communications Equipment [For Groups and Stations only]

1. Verify the list of NDS communications equipment. [Note: provided by the Coast Guard R&DC). (e.g. transceivers, guard receivers, direction finding equipment, DES, antennas, and recorders.) _____

NDS Traffic System Model ***Information Collection Guidelines for Unit Visits*** **Groups and Stations**

Purpose. The purpose of this group discussion is to collect information that can be used to quantify NDS communications usage experienced at Coast Guard groups and stations in the First Coast Guard District.

Objectives: This group discussion has two major objectives.

1. Establishing and/or confirming a voice baseline.
2. Determining potential traffic levels.

Guidelines. The group should consist of Coast Guard personnel who are experienced in the operations and communications at First Coast Guard District groups and stations. Discussion groups should be conducted separately for each group or station. Four to eight participants will provide an optimum size group from which to obtain the required information.

Discussion Items. The following questions are intended for the facilitator to guide the group in a discussion that reveal the missions and operations of the units.

7. Identify and discuss the communications at the Group/Station including periodicity, duration, channel usage, and transmission types.

a. *Periodicity:* _____

b. *Duration of period [Note: do not use extremes]:*

Usual Length: _____
Minimum Length: _____
Maximum Length: _____

c. *What NDS Channel(s) do you use?*

- Channel 6]
- Channel 9]
- Channel 16]
- Channel 21]
- Channel 22]
- Channel 83]

Do you often have to change channels? _____

If yes, approximately how often during the course of the day? _____

Why? _____

d. What are the transmission types which your unit deals with?

Transmission Type (Check all that apply)
Operational Traffic
SAR
ELT/MLE
Administrative
Other _____

B. Cellular Telephone Usage

1. Do you currently use a cellular telephone for Coast Guard business (e.g. operational, logistical)?

Yes] No] N/A]

Why? _____

If yes, how do you use it? _____

If no, do you foresee using it for Coast Guard business in the future? _____

2. How often do you use the cellular telephone? _____

3. Do you use it to replace the radio or as a supplement? _____

Why? _____

4. a. Do you see significant cellular usage by the boating community, commercial mariners, or other agencies?

Yes	No	N/A
_____	_____	_____
_____	_____	_____
_____	_____	_____

b. Do you see trends in this usage? _____

